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**Zhao et al.**

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(54) **METHODS FOR CONVERSION OF CARBOHYDRATES IN IONIC LIQUIDS TO VALUE-ADDED CHEMICALS**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 828 days.

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This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **11/774,036**

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(22) Filed: **Jul. 6, 2007**

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

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(52) **U.S. Cl.** ..... **549/488**; 549/489

(58) **Field of Classification Search** ..... 549/388, 549/488, 489

See application file for complete search history.

(57) **ABSTRACT**

Methods are described for converting carbohydrates including, e.g., monosaccharides, disaccharides, and polysaccharides in ionic liquids to value-added chemicals including furans, useful as chemical intermediates and/or feedstocks. Fructose is converted to 5-hydroxymethylfurfural (HMF) in the presence of metal halide and acid catalysts. Glucose is effectively converted to HMF in the presence of chromium chloride catalysts. Yields of up to about 70% are achieved with low levels of impurities such as levulinic acid.

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**10 Claims, 6 Drawing Sheets**